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Patented Dec. 16, 1902.

M. D. KNOWLTON & F. H. BEACH.

STAY STRIP.

(Application filed Oct. 9, 1901.)

(No Model.)

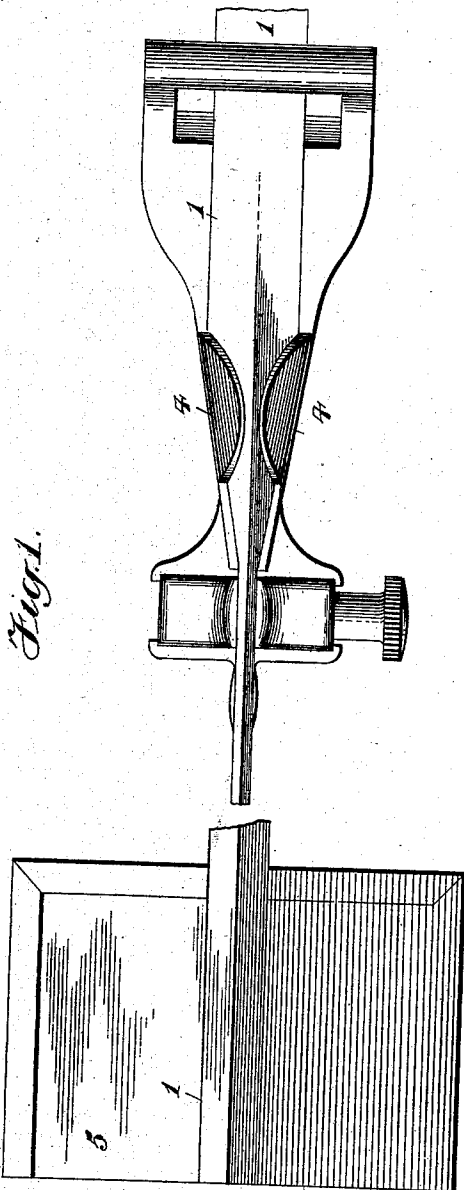


Fig. 2.

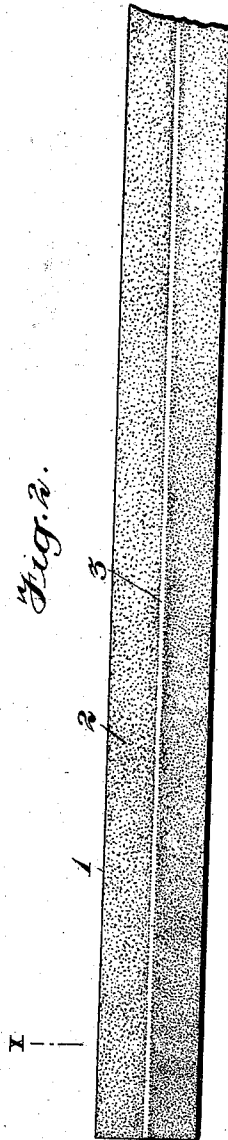


Fig. 3.



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STAY-STRIP.

SPECIFICATION forming part of **Letters Patent No. 716,249**, dated December 16, 1902.

Application filed October 9, 1901. Serial No. 78,087. (No model.)

To all whom it may concern:

Be it known that we, MARK D. KNOWLTON and FRED H. BEACH, citizens of the United States, residing at Rochester, Monroe county, State of New York, have invented a new and useful Improvement in Stay-Strips, of which the following is a specification.

In the manufacture of paper or strawboard boxes it is the usual custom to apply an adhesive stay or fastening-strip over the joints at the corner of the boxes for the purpose of securing the adjacent edges together. Such stay or fastening strip consists of a relatively narrow strip of paper or other fabric which is coated with glue or other adhesive substance on one side thereof. When this strip is applied to the corners of boxes by machinery, it is usually fed from a supply-reel through a suitable folder, then over a roll or other device for dampening the glue thereon, and finally to a position over the box-corner, to which it is applied by suitable clamping-dies. As the strip passes through the said folder the latter acts to double or fold the strip in its middle, so that it will take and maintain an angular or substantially V-shape form in order to conform to the box-corner and take its proper position thereon when moved over the same preparatory to being acted upon by the clamping-dies. In giving the strip such angular or V-shape form it is desirable that the apex of the angle should be substantially central of the strip and parallel with its edges, so that the strip will extend an equal distance upon each side of the box when applied to the corner thereof. In feeding this strip through the folder to secure such correct angular formation of the same it sometimes happens that the bending-line of the strip veers more or less from a central or other desired line, so that in some cases an insufficient width of strip will be left at one side to properly fasten the box-corner, while in any event the uniformity of its appearance on the box-corner will be destroyed.

We are aware that an attempt has been made to avoid the above-mentioned objectionable feature by providing the stay-strip with a crease or groove along the line where the angle is to be made. This crease or groove serves to perform the desired function in causing the strip to bend along the proper

line; but it is objectionable in that any creasing or grooving of the strip tends to break and separate the fiber of the paper more or less, and so weaken the strip where the greatest strength is required—namely, at its point of angle and at the corner of the box.

Having in mind the foregoing facts, it has been the object of our invention to provide an improved stay-strip having means that will act to insure the bending of the strip along the proper line and without destroying or impairing the inherent strength of the same in any way.

To this end our invention in one form thereof consists in providing a stay-strip having stiffened portions at each side of a longitudinal bending-line of less stiffness, the said stiffened portions being formed by a coating of stiffening substance applied thereto and presenting an adhesive face or surface for application to a box-corner and the bending-line being formed by the partial or entire absence of such stiffening substance. When lateral pressure is applied to the edges of a strip thus formed either by a folding device or by hand, it will be obvious that the strip will bend on the said "bending-line" as being the line of least resistance. In this manner we secure practically the same result as though the strip was creased or grooved, but without in any way impairing the inherent strength of the same.

Referring now to the accompanying drawings, forming part of this specification, Figure 1 is a plan view of a folder device and a piece of our improved stay-strip in the form it assumes in passing therethrough. This figure also shows a box with a piece of the stay-strip located on the corner thereof. Fig. 2 is a view showing the coated side of the stay-strip, which is the under side of the strip as shown in Fig. 1. Fig. 3 is an enlarged cross-section through line *xx* of Fig. 2, showing the bending-line of the strip formed by a partial absence of the coating substance; and Fig. 4 is a similar view in a modified form, showing the bending-line formed by an entire absence of the coating substance.

In said drawings, 1 indicates the stay-strip; 2, the coating of stiffening substance, such as glue, on one side of said stay-strip, the same being usually applied to the strip in a fluid

or semifluid condition and then set or hardened thereon, whereby a desired stiffness is imparted to the strip, and 3 the longitudinal bending-line of the strip formed by a partial or entire absence of the said stiffening substance. When a stay-strip thus formed is fed through the folder of a staying-machine, such as shown in Fig. 1, it will invariably bend along the line 3 when its edges are forced laterally toward each other by the converging guide-flanges 4 4 of the folder by reason of such line being of less stiffness than the stiffened portions of the strip at each side thereof, and so offering the least resistance to lateral or bending pressure. After leaving the folder the stay-strip maintains an angular form until it reaches its position over the corner of a box, as shown at 5 in Fig. 1, on which it will take its proper position, with its centrally-formed apex over the box-corner, as shown. The bending-line 3 of the strip, which, as before stated, may be formed by either a partial or an entire absence of the coating substance, will usually be formed, particularly in the event of such substance being adhesive, as is generally the case, by only a partial absence of the same, as it is desirable that that side or face of the strip intended for application to the box-corner be entirely coated to a certain extent by the adhesive substance. This bending-line 3 is also made relatively narrow, so as to insure the uniform bending of the strip on a determined line, as it will be obvious that if such line was of any considerable width it would permit the strip to bend on a line veering more or less from the proper and desired one and so be impracticable for the purposes intended.

While we have thus described and illustrated our invention as an improvement in stay-strips, it will be obvious that the same may be adapted to paper or fabric in other forms having an intended bending-line, as we believe it now to be new and original with

us to provide a paper or other fabric which in its particular application or use is intended to be bent on a predetermined line with a coating of adhesive or other stiffening substance thereon, the said coating being of less thickness on the intended bending-line, whereby the latter will form a line of least resistance under bending pressure.

What we claim, and desire to secure by Letters Patent, is—

1. As an article of manufacture, an uncreased stay-strip having stiffened portions at each side of a longitudinal bending-line of less stiffness, the said stiffened portions of the strip being formed by a substance applied thereto and presenting an adhesive face for application to a box-corner.

2. As an article of manufacture, an uncreased adhesive stay-strip having stiffened portions at each side of a longitudinal bending-line of less stiffness, the said stiffened portions of the strip being formed solely by a coating of stiffening substance in a set or hardened condition thereon.

3. As an article of manufacture, an uncreased stay-strip having stiffened portions at each side of a longitudinal bending-line of less stiffness, the said stiffened portions of the strip being formed solely by a coating of adhesive substance in a set or hardened condition thereon.

4. A stay-strip having a coating of adhesive substance in a set or hardened condition thereon, said coating being of less thickness on an intended bending-line.

5. A paper or other fabric having a coating of stiffening substance thereon, said coating being of less thickness on an intended bending-line.

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